MINUTES
Tongue.Powder.Rosebud
TMDL Modeling Committee Meeting
May 27, 2004
Billings, MT

Modeling Committee members present:

Pete Schade	*MTDEQ*
Julie DalSoglio	*USEPA*
Art Compton	*MTDEQ*
Michael Pipp	MTDEQ
Dan Hengel	*WYDEQ*
Todd Parfitt	*WYDEQ*
Mike Bergstrom	*Fidelity*
Frank Sanders	*CBM Associates*
Joe Walks Along Jr	*NCT*
Art Hayes	*Tongue River Water Users Association*
Roger Muggli	*Tongue/Yellowstone Irrigation District*
Clint McRae	*Rocker Six Cattle Co*
Jim Domino	*DNRC*
Kevin Smith	*DNRC*
Jason Gildea	*Tetra Tech*
Kevin Kratt	*Tetra Tech*
Mark Fix	*Northern Plains Resource Council*
Tom Pick	*NRCS*
Bill Shafer	*Shafer Ltd*
Joe Walks Along Jr	*NCT*

Others present:

Mark Nienow	*USFS*
Tom Reid	*MTDEQ*
Ana Maria Garcia	*Tetra Tech*
Allen Clubfoot	*NCT*
Gene Anacko	*BIA*
Joe Olson	*Marathon Oil*

MTDEQ-Montana Department of Environmental Quality
WYDEQ-Wyoming Department of Environmental Quality
NCT-Northern Cheyenne Tribe
MTDNRC-Montana Department of Natural Resources & Conservation
TRWUA-Tongue River Water User's Association
NPRC-Northern Plains Resource Council
BLM-Bureau of Land Management
TYRID-Tongue-Yellowstone River Irrigation District
USEPA-United States Environmental Protection Agency
MSU-Montana State University
NRCS-Natural Resource Conservation Service
MTFWP-Montana Department of Fish, Wildlife & Parks
USGS-United States Geological Survey

**Please note not all comments and discussion is captured in these minutes. Effort was made to capture the substantive threads. Some comment was not clear on the taped record, and has also been omitted. Please refer to the accompanying powerpoint presentation or .pdf document that provides meeting slides and talking points.*

Access this presentation at http://www.deq.state.mt.us/wqinfo/TMDL/TonguePowderRosebudTMDL.asp

1. **Intro**
   Pete Schade called the meeting to order at 9:00 AM

2. **Process Updates**

   Art Compton said DEQ is getting pretty close to finishing. Art would like to propose a midsummer meeting of this group when DEQ has finished the calibrations.

   Pete Schade went through two slides of what USGS data is available on the web. This web site can be used to check the data that is available in real time.

   Roger Muggli asked about the SAR and how to read it? He can't see a correlation between water samples that have been taken to the website information. He is uncomfortable to just assume the SAR through all of the major events on the web.

   Pete Schade said that Dave Nimick (USGS) may be able to answer questions regarding SAR estimates.

   Art Compton said he will make sure Dave talks about the new SAR analyzer that will replace the online number with something that is calculated on a much more appropriate algorithm (What is the sodium? What is the magnesium? and What is the calcium?). It will be an actual real time calculation of SAR. The instrument is not installed yet.

   Clint McRae asked whether the new process for calculating SAR is going to be more accurate? If it doesn't succeed what will DEQ do?
   Art Compton said that a calculated SAR is definitely going to be more accurate than an estimated SAR. The new analyzer will be a very complex piece of equipment.

   Clint McRae expressed adamant concern that during drought and low-water years, EC and/or SAR exceedences at Miles City will be blamed on drought conditions rather than industrial discharges.

   Mark Fix asked whether DEQ will use USGS-collected data or DEQ-collected data to determine compliance with water quality standards.
   Art Compton replied that a variety of data sources will be used, including both DEQ and USGS data.

Todd Parfitt clarified statements made at a Yellowstone Compact Meeting by saying that WY and MT will maintain a close relationship to determine water quality compliance criteria at the MT/WY border. Criteria will be decided based on the modeling outputs and negotiations between respective Environmental Quality departments.

Jim Domino asked whether WY was moving towards developing numeric standards for EC and SAR.
Todd Parfitt replied that WY will rely on its existing narrative standards and pending water quality border criteria to provide a tool for permitting in WY.

Roger Muggli and Mark Fix expressed concern that there is no indication that next year will not be a drought year and that if exceedences continue to occur at Miles City, the last in (industrial dischargers) should be the first out.
Todd Parfitt commented that it is an *assumption* that exceedances at Miles City are due to discharges above the Tongue River Reservior.

Clint McRae asked how many companies are presently treating their discharge water and how are they treating it?
Art Compton replied that Powder River Gas Partners is proposing to treat discharge water to the standard at the end-of-pipe, and that the technology is Higgins Loop Ion Exchange.

Clint McRae was concerned about CBM empoundments and infiltration to GW, especially with respect to subirrigation in the Rosebud Valley.

3. **Responses to Modeling Committee Input**

Kevin Kratt discussed a model that was referenced in a 1970's report on water quality management in the Tongue River Basin. The model focused on nutrient and dissolved oxygen issues but did not include a watershed-wide component and is much less robust than the model currently being developed.

4. **Data Update**

Kevin Kratt provided an update on the data used to calibrate the model. Details can be found in the powerpoint presentation.

5. **Modeling Updates**

Ana Maria Garcia did a model demonstration and presentation with examples of some of the streams in the Tongue/Powder/Rosebud basin. NSPC is public domain software and it has two interfaces (GIS interface and coefficients and parameters interface).

A lot of the slides that have been presented out are going through the calibration steps. This is the final check to look at the impact of a certain scenario. It is not the idea to be biased with the model. It is summarizing the data. The model checks are trying to make sure that the data coming in matches the data from the model.

Q: It was asked if any kind of elevation correction was made on the data in the higher elevation?
Ana answered that yes there is corrections made for elevation. They can also make elevation corrections for the basin. Some will have higher corrections than others.

Q: Snow is such a very important element in the watershed, is the model flexible enough to account for the extreme rain condition? Can the snowmelt module be improved?
Ana said that the Snow Melt Model is adequate for what we are dealing with. There is more problems with quantifying how much snow is falling. The limitations are due to the modeling of elevation differences. Whatever is happening in the lower lands will then be corrected for the higher elevations areas. The corrections will be for the higher snow pack in the mountains. Ana feels like there does not need to be any different changes to be made to the model. One of the reasons the issues of snow pack in the higher elevations is important, is if the numbers are not right then there is the problem of being off downstream in the river. The more accurate the numbers are, the less changes that need to be made. Even an improvement in percentage early on would save more time later on in the model.

Q: *Are you keeping in account the storage in Moose Creek?*
Ana said that in the last meeting it was talked about how that storage is scattered throughout the watershed. The way it is modeled is by computing the total storage and having it contained in a pond that has the same volume as computed for the entire drainage area.

Q: Will there be development in the Rosebud area of the battlefield and would it have an affect on the source water as it applies to the Rosebud? Is there some kind of modeling for water quality that can be done to show what will happen downstream on the Rosebud from the development?
Ana replied that whatever happens on the Rosebud will have an effect on the latter part of the stream. Artificially the model can be set up so that you can show what happens on a certain segment and then find out the results downstream.

Q: Will this model approach surface effects as well sub-surface effects?
Ana replied that it is accounted for in the model. Everything is taken into one lump of massive water and routed so that surface and interflow, included with volume and mass.

Q: How do you address water quality?
Ana replied they look at the data and which is based on empirical observations and calibration parameters. The surface quality is based on the idea building up constituents and those constituents being carried off by a runoff event. The subsurface is accounted through the volume of water being accounted for in the soil and water area and then what empirical relationships there may be with the constituents in the soil/water column. If there is something known about the constituents in the subsurface it can be incorporated as a spatial or conferral trend but that is something that is technically outside of the model. For each land use there is surface and subsurface issues.

Comment: There is a situation in Colstrip where the Power Plants are taking water from the river and putting the water in a reservoir. It has wiped out some of the water further down the stream. When the water is put back in the aquifer it may be contaminated.
Ana said the data should reflect changes in the stream that happen from recharge.

6. <u>Example Scenarios</u>

A presentation was done on the Upper Tongue RFD and the data that has come from there. There were graphs of all of the different scenarios. Refer to the presentation for more details.

7. <u>Questions/Comments/Wrap-up</u>

Art Compton said the group needs to set up the next meeting date in August.

It was decided to do the next meeting on August 10, 2004. Pete will set up the meeting and get the normal meeting room.

Q: Will there be a public meeting on the draft TMDL?
Art Compton said there would be a public meeting on the draft TMDL in this area between Billings and Miles City. There will be comments taken in on the draft TMDL.

Meeting was adjourned